Salvage Lessens U-Boat Raising of Many Sunken

## Ships by England Helps to Defeat the German Submarine Campaign



TILDING new ships to replace oses is not the only way to defeat he German submarine campaign. Saving ships that have been damged, lifting those, even, that have een sunk, and restoring them to scagoling condition, are among the nethods which have gradually been improved in England as the stringency of the shipping shortage became greater each month. The reason why the

British authorities were not fully equipped to raise every ship that was sunk from the very start of the war is purely commercial. Salving ships costs money. Building new ones costs money. So long as the cost of salving was equal or even slightly in excess of the cost of building, so long it was not worth the while of owners to order salvage operations-just so long were invention and progress in the art of salvage delayed. When the salving of ships became urgent in the course of 191d inventors of new appliances and new methods, salvage experts of many years standing, set their brains to work, and the result is that today ships can be raised and repaired from positions that two years ago would have been abandoned as hopeless.

As showing how need stimulates lavention, I may instance a discovery in chemistry which has proved to be of the utmost value in salvage work, writes H. C. Ferraby in Country Life. It is obvious that when a ship, laden with grain, beef, or other perishable stuffs, gets water-logged with seawater, something very unpleasant is going to happen to her cargo. In point of fact, it turns anto - miniature poison-gus factory. Grain produces sulphuretted hydrogen, and the salvage men who stimble on a pocket of that in a beached slip would be selzed with violent sickness, would be partially blinded for some time, and would turn a dull leaden color in the face. Experiment brought an antidote to this trouble, and now the cargo of a ship that is to be salved can be sprayed with a special solution as soon as there is any reason to suspect poison gas. This spraying removes all danger.

Salvage work before the war was purely a private enterprise. The admiralty had no salvage branch, and when warships went ashore or were beached after collision the private tirms, like the Liverpool Salvage association, were called in. War aftered that, like many other things in the maritime world, and today the whole of the salvage work around the United Kingdom is carried out by an admiralty department. But sine the men manning that department are, without exception, the former heads of the salvage business, the difference is mainly

in titles and not in methods.

Warship salving is confidential, and the work done by the department in this direction cannot be described. Its share in keeping the allies supplied with merchant ships, however, is not secret, and the record of work done since October, 1915, is an excellent one. Down to the end of 1917 the admiralty salvage section, under the guidance of Capt. F. W. Young, had rescued 260 wrecked, mined or torpedoed ships and sent them in for repairs. All that time their experience was growing. New material was being built for the work, new ideas were being put into practical shape, and the result is that the year 1918 has so far seen a remarkable increase in the number of ships saved. The figures for the early part of this year are: January, 14; Februnry, 41; March, 37; April, 30; May, 19; giving a total of 147. Thus in 32 months 407 ships have been restored to the world's mercantile tonnage. The Germans count all these and some of them twice over, in their calculations of the tonnage loss indicted on the allies by the submarine campaign.

Every salvage man will tell you that the only thing certain about it is that you never know what is going to happen. A ship may be ashore in the simplest position, with just one big hole in her to be putched up, and it looks like a job that will take a few days. In the end you are, perhaps, six months banging around with that one thip before you can get her to float. Wenther, tides and the condition of the cargo all play a leading part in the work. The only thing the salvage man has got to do all the time is to be patient. That, perhaps, is why they all look so tired. Walting is a weary business.

The weather is the worst enemy of salvage men. It is very nice on a fine summer's day to stand on the cliffs and look down at the busy humming workshops that we call salvage steamers clustered round a wreck that shines red with rust in the smallght. The motors of the pumps drone incessantly, and the great 12-inch pipes send out casendes of gray water whose sinle scent travels far before it is lost. The metalhelmeted divers clamber up and down, sitting for a while in the sun to make report of their progress below, receiving orders for the next stage, or just resting. It is different when the southwesterly gales blow, when rollers pour in from the Atlantic and pound down like Nansmyth hammers on the decks of the wreck. The salvage boats and tugs all have to run for shelter, work has to be abandoned, and only the still, silent bulk is left to weather the storm. So long as she is firmly imbedded in the sand or shingle, however, and there is plently of water inside her as well as outside, it takes a good many months of storms to knock a ship to pieces. It is often necessary, in order to save a wreck from the effects of weather, to flood compartments in her that had remained watertight,

The problem of dealing with the water in wreeks and in ships that have been holed but are still affont has been advanced very far toward solution during the war by the general adoption ef a new British invention, which has been described as a miracle of modern electrical engineering. Described simply, it is an electrically driven pump which can be entirely submerged and will still pump as efficiently as if it were above water. The submersible pump, as it is called, does things that no one ever believed a pump could do. I saw one in the hold of a wreck recently, covered with a black, evil-smell-

OFFENDER HELD UP TO DERISION

Perhaps it is in the East that decision as a

means of enforcing amendment flourishes most.

A Ceylon magistrate once had at his bar a native

whose willy duplicity baffled every effort to get at

facts. He lied and produced evasions and tricks

until the magistrate's patience was spent. Then

came the order that he should be tomtommed-

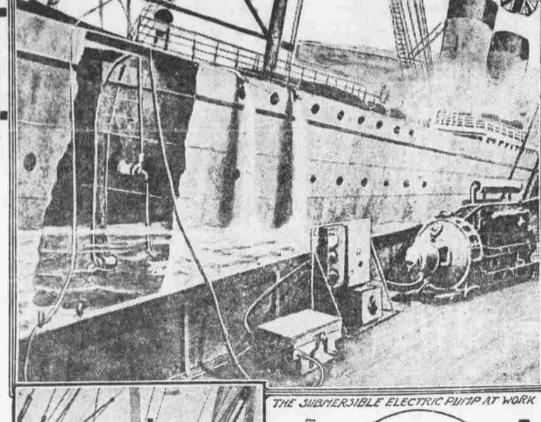
that is to say, the offender was the center of a

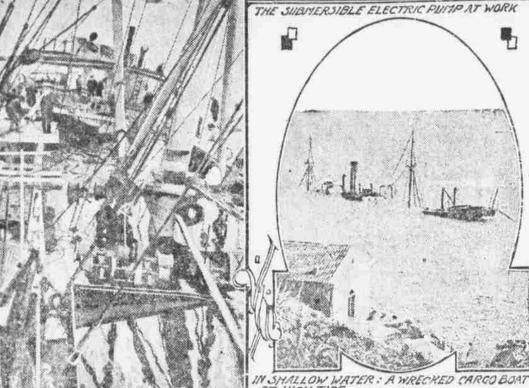
little procession, which traversed the tortuous

streets of his town. The court usher led the way,

bent the toratom, pointed to his prisoner and re-

cited bis ovil practices.





SALVAGE WORK AT LOW TIDE

ing occe, locking for all the world like a bit of wreckage itself. But it had just finished a long bout of pumping under water in that hold, which was filled with floating barrels, beams, tangled ironwork and a sludge that was indescribable; and when it had been put over the side and had pumped a few tons of clean sea water through itself, that pump was ready to start work again

The secret of the pump is that it is not watertight-which sounds absurd. It is, however, perfeetly true that the water can flow in and around the whole of the works of the pump while at work. No one has ever hitherto succeeded in making electricity work under water in this way; but the uses of the discovery are plain even to the layman. A ship fitted with these numps, for example, ought never to sink, if she has enough of them on board, because they can be set to work in the flooded compartments and pump the water out as fast as it comes in. Damage to the engine rooms does not affect the numns, because they do not rely for their current on the ship's dynamos, but on their own portable outfit.

Salvage experts tell one rather amusing tale of the versatility of the pumps. A fire broke out in the hold of a ship that was carrying a very valuable inflammable cargo. Two submersible pumps were on board, and the captain slung them over the side into the sea, attached a rood length of hose to them and set them going to pump water at the rate of about 350 tons an hour each late the burning hold. They soon put the fire out, and the captain then lowered the pumps into the hold and made them pump out the water they had previously pumped in,

Fire at sea, collision, weather and other marine risks are all dealt with by the admiralty salvage section just as much as war risks such as mining and torpedoing; but it is, of course, the war risks that provide the bulk of the cases. Tae work of the section falls really into three parts. plane, one of which partly disabled my while French bombers crossed our commander."

There are, first of all, the rescue tugs. These proceed to any ship that is in distress, whatever the cause, and endeavor to tow her into port, gun also jammed. or at least to get her into shallow water, where she can go aground or even sink and still be one French bomber found ourselves out of control and one engine out of Elichart lakes conducted by members salvable. In the latter case the second part of separated from the rest, and started control. the section's work begins—the patching up, emp- home together, I kept losing attitude tying and lifting. This may take anything from while trying to fix the gun. I only six weeks to six months. When she is lifted and uffoat again she is towed to the nearest sheltered | gun. anchorage, and there temporary repairs are effected, she is cleaned up inside and her engine- while flying in fair archie fire, and try- ting worse. The other two, like typiroom restored to something like order. It is ing to get the jammed shell out of my cal British soldiers, stayed with me the aim, as far as possible, to enable her to proceed to a shipyard under her own steam. There are cases, of course, where the torpedo or the mine has exploded just by the engine-room and blown everything to fragments. Then the hull, patched up, has to be towed to the repairing yard; but in the majority of cases the damage is in the bows or in the stern, and the vessel can limp along by herself after first aid from the salvage section.

British salvage experts have little hope of solving any of the ships that are down in deep water. The physical limitations of divers alone would make it an impossibility to raise, for example, the Lusitania, and, so far, no mechanical devices that have been suggested or made hold out any hope of doing the work of the diver with

### INTRICATE WEAPON

Back of the torpedo is its fish-shaped body, containing all the machinery to drive and steer after it has been launched. From forward aft we find compartments as follows: A compressed air reservoir, an immersion or balance chamber, engine space and a buoyancy chamber. The tiny engine is driven by compressed air, which is compressed to a high degree, and it rotates the propellers whereby the projectile is carried through the The immersion or balance chamber provides the means of maintaining the depth a, which the torpedo shall travel through the water after being launched. In the engine chamber there is also the device for keeping the projectile to its designated path during its travel. This is achieved by means of a gyroscope. The buoyancy chamber, which is placed aft of the engine chamber, is virtually a vacuem. Without this chamber the torpedo would sink. The propellers and rudders are astern and outside the torpedo's body.

#### WONDERFUL RESEMBLANCE.

Dien Boucieault, the actor-dramatist, was the very image of Sir Kenelm Digby, the seventeenthcentury philosopher. Douglas Jerrold and Montgolfier, the inventor of balloons, might have passed as twin brothers. Montagu Williams had only to don a black periwig to become a perfect double of Charles II as depicted by Sir Peter Lely. The likeness between Byron and J. L. Motley, the historian of the Dutch republic, was described by the poet's widow as "most wonder-

Charles MacFarlane in his "Reminiscences of a Literary Life," describes how, in 1820, he met Shelley in the Royal Burbon museum, Naples, and showed him a statue of Agrippina, the mother

OZONE AS A FROST SHIELD

It is a fact familiar to scientists that the relatively large quantities of ozone to be found in the upper atmosphere do much toward regulating the earth's temperature by absorbing radiating heat. The interesting suggestion has been made that, if means could be found to charge the lower air above orchards, for example, with ozone, its capacity to absorb radiating heat might be sufficient to prevent frosts which otherwise would be destructive to the fruit, so much of which is now imperiled a few nights each season. -Popular Mechanics Magazine.

of Nero. "I told him that the Bonaparte family considered this the very image of their mother. When Madame Mere was in Naples, her daughter, Queen Careline, induced her to sit by the statue, and made a large party remark on the striking resemblance."

#### GREAT PLAY NEVER PRODUC\_D.

Gen. Lew Wallace wrote a tragedy entitled "Commodus," which was founded on the story of Maternus, an escaped slave, who rebelled against his country, placed himself at the head of a band of outlaws, planned the capture of Rome and his own elevation to the throne, but was finally betrayed and killed. It was never produced, but Lawrence Barrett, to whom it was submitted, wrote General Wallace that it was the best play sines "Richelleu," and that "both as a poem and ac an acting play 'Commodus' is the best English drama." It was printed, but never staged.-Boston Globe.

#### UP, SEE, UP.

"It's just dawned on me why those trapeze performers are sech funny fellers," said the mannger of the op'ry house. "Wall, why is it, ole Smart Alec," asked the

sher'f of the taoun. "Why, cause the dern cusses is allers actin' up."

#### FAIR TREATMENT.

A beautiful young lady approached the ticket window, and in a voice like the rippling of a brook asked the clerk: "What is the fare to the

To which the clerk replied: "Same as to the homely, 'madam."

#### HE BIT.

"When I was a boy," said the stout old fellow "circus parades used to have giraffes in 'em." "They couldn't let giraffes parade in the streets now," said the slim fellow."

"Why not?" "Why not? They would eat the currents off the electric wires."-Boston Evening Transcript.

#### A DISTRESSING PROSPECT.

"They say there's no fool like an old foel." "That make me shudder for the future. I've already been all the other kinds."

# United States Marine Borrows Plane and **Does Amazing Stunts**

He Wings Five Foes, Captures Prisoner, Saves Wounded Man and Gets Captaincy-While Trying to Adjust Engine Trouble He Sees Two Britons Attacked by Twelve Huns, He Dives Into Melee and Shoots Down Four of Foe.

By FRAZIER HUNT.

the French coast,-Time was when the to be the soldiers of the land and sea. to slaughter, Now they have added the nir to their the marines holds good, even in the way out of the circle, but the Huns

The other day a fighting Yankee Edwin C. Chamberlain of Texas, went | circle. visiting a British flying squadron on

On the first morning of his arrival Lieutenant Chamberlain borrowed a flames and forced another to descend up and went down burning. so a British flyer could get him.

On the next day he went as an escort for a party of French bombers and one of his guns lanumed. While attneked by 12 Germans. He dove

Land. Leaving his machine, he ran and a wing fell off the other one, unarmed into a Hun patrol of three way back to the French line. The Marine's Own Story.

Land. Leaving his machine he ran wing in a fantastical spin. the British commander insisted on a tainey. Here is his report:

"We then started home and were on. got together.

"A few miles farther on the Hun that he hung as if dead. came at us in four formations of ten engine and made it die every few min- lines safely. utes and then run fine for a spell. One

100 shots left in the remaining | zero.

circling about my companions, and ions could not assist me. quite a way above was one coming

Engine Bad, Hunts Fight.

went to meet him like I meant to bullets. I then landed on a sloping defight. I fired just to break the strain, pression near the wood, an eighth of a He suddenly pitched forward and dove | mile beyond the enemy outposts. straight for the ground. Just then my "I was in a wheat field about 100 engine suddenly became very lively, yards from some trees, which were

and I started up to join the buzzard sitting high. He evidently was the as he was a married man. United States marines were content leader and was watching for some one

circle. They didn't see me as I flew flyer of the marine corps, First Lieut. into the hazy sunlight just over their

"As two went for my companions I went for them, nose down, with the vertical engine full on, I got the first one in thirty yards with twenty rounds plane and shot down one German in from my one working gun. He blew

Second Goes Down Burning.

"As I dodged to miss him the second over the Marne. On the way back be me, and I got him with a burst of him up. I ordered the German to got into a fight, had engine trouble. twenty-five shots at twenty yards. He make his way with his hands up. The spun about, with flumes leaping over Hun drew no fire. Then I went in. dying low he saw two of his commades the machines. The pilot jumped out. Snipers took three shots at us, but they into the mixup and shot down four ing. I looked around and saw five very thick on the other bank of the enemy planes. His engine stopped coming at me, including the leader, in stream and I had to drag the wounded again, but while gliding low he emp- a mellow gray Albatress. I saw my colonel through the Hun-shelled tied his gun into German infantrymen. | companions go after a Hun apiece, and | thicket. He was forced to land in No Man's each got one. One went down burning "We were suddenly fixed on and

men. Swinging his compass as if it the Hum came after me in twos, and I caine aux blesse colonel, 'Aviator was a grenade, he captured one Ger- dove vertically for a second, pulled American, and added about all the man. Then he picked up a wounded into a loop without power, and kicked. French I knew. A whole string of colonel, forded a stream, and made his | into a vertical side slip at the top.

"There directly under me was a He requested that his work be re- him. He went down with a dropping Then two men and a French officer

full report, and now Lieutenant Cham- ing Huas. The leader was first. He ed colonel, who talked fast, whereupon berlain is recommended for a cap-pulled a powerful wing over at me, the Frenchman threw his arms about attacked by a force thirty strong. A and was pilled up myself with bullets calonel to the dressing station, which dog fight followed. We lost three ma- going by like hall. I looked out and was being shelled. The Hun acted as chines and the Hun three. He with- there was the leader diving on his my assistant and interpreter. Speakdrew. We were a bit scattered, but back, hanging out of his machine, ing French he was able to give valua-

"I turned desperately, having no

Score, 7 to 0.

"Three of us attacked by twelve shot "Two other fighters and myself and four down in flames, two completely hotels and dance halls at Crystal and

"Odds, twelve Huns; three allies, "Score, seven Huns down; allies,

"After I had gone quite a way back "About eight miles from our lines, east my engine went had and kept getgun, all suddealy became quiet. I until near our lines, when the engine knew this meant there were Hun died. I was getting all the archie planes about. Looking up. I saw and machine gun fire from the newly twelve Hun fighters-a circus lot- established enemy lines. My compan-

"I saw I couldn't make our lines in the deep woods, so I dove onto the Hun troops, coming behind their lines. "My engine was missing badly, and Having fixed my other gun after the had gone dead a moment before, but I | fight, I scattered them with a hall of

enemy outposts could see only the top wings of my machine, but began to shell it. So I tore out the round iron compass and the maps and tried to

burn the muchine, but only fired the "The shells were coming close, so I crawled toward the woods. As I came to a small water-filled dirch, I almost

Helped by Enemy Fire.

"On the other side were three Hnns erawling towards me. I was unarmed, but remembered that the compass looked like a grenade. I hauled back as if to throw it. Two Germans jumped and ran, one falling, hit by fire from his own lines, and the second being killed. The third cried 'kamerad' and threw down his rifle. I got that rifle, took his pistol, and ordered him to craw! ahead.

"He looked startled when he heard dance above, where it was ten to two English, and answered in good Eng-American Naval Aviation Camp on against us. The eleventh German was lish. He begged me not to kill bim,

"I told him to shut up and erawl on. If he did not try to run he would not "My two companions were darting be harmed. We reached the wood, provinces—and the everlasting luck of this way and that, trying to force their thick with brambles and swept by machine guns and shells. In the middle were maneuvering so as to tighten the of the wood was a stream fige feet wide and four feet deep. I heard a whispered groan in French, so crawled along a few yards and found a wounded colonel, who had been hit

in the leg and neck. Cares for Wounded Man.

"The German prisoner followed me without a word. He started to give the man a drink from his canteen, but I took the canteen, washed it, gave the colonel a drink, washed his wounds so enemy turned square about in front of I could move him, and then picked "Then my engine commenced miss-only splashed about, The brush was

challenged in French. I replied in "Then my engine stopped full, and bed French, Officer militare Ameri-French came in reply.

"The German said, They say rawl desperately moving Hun, but I had into the open with hands up.' I did. came. They bristled at the German, "Then I went after the four remain- but I pointed to my gun and the woundbut I got the Idea first. We met head me and talked a lot. We crawled to I fired the last thirty rounds the outpost. I helped the wounded evidently hit. The others reported ble information, and I took him to the division headquarters

"When questioned I pretended I did each, this time outnumbering us nearly more shots left. I saw my companions not know what was wanted and two to one. We had an awful dog attacking the three remaining Huns, wouldn't give my name. After a time fight, and lost two bombers and four who were making off in wide circles, the French commander got this inforfighters. I got several bullets in my The other two Huns had disappeared, mation by telephone from the British

Not a Slacker There.

Sheboygan, Wis .- A raid on summer of the defense council and similar organizations failed to round up any slackers, as every young man accosted by the officers produced a registration

#### TEACH WOMEN HOW TO FIGHT HUN PROPAGANDA

Seattle, Wash.-Seattle women are learning how to combat German propaganda. At the University of Washington, and institute under the direction of Miss Hunley Coldwell, dean of women, is in session giving a large class of women accurate information of the government's war program.

gannanundanundanundanung

#### CHATEAU THIERRY PEOPLE GREET THEIR LIBERATORS



In this, one of the first pictures to reach this country of the battle of Chateau Thierry, are shown some inhabitants of the town who remained during the German occupation walking through the destroyed streets to meet the

Bembing of Berlin and Defeat of Hun Navy May Break Their Calm.

London.—The Englishman's pride in being calm and undemonstrative in the face of good news from the front has here to have your hair clipped and cers, one of whom has gotten from a Darrel, youngest of the three sons ment as to what is worth cheering for. front fighting against the Huns. "There are two events which, when

our hats in the air and smile as loudly like an egg." Darrel continued, as you please," the general said. "The bombing of Berlin and the coming out of the German navy."

Fooling the Cooties. Mansfield, O .- "It is the fashion

"As I have not allowed myself to were torn from him.

WILL MAKE BRITON CHEER they come to pass, will make us throw fall behind the styles, my head looks

Mansfield, O,-The breaking of m collar button in his shirt saved Leslie Stagers from death. He was at work on a drill press in an electrical plant here when his clothing caught on some been a great mystery to American offi- then have your head shaved," writes machinery in such a way as to tighten his collar. He was rapidly choking to British brigadier general enlighten- Charles M. Nichols has at the western death when the button broke, releasing him. His shirt and underclothing